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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/709,098	11/10/2000	Naoyuki Shino	81707.0164	2879

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EXAMINER	
LEE, BENNY T	
ART UNIT	PAPER NUMBER
2817	

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Patent and Trademark Office

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09/709,098

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.

EXAMINER	
ART UNIT	PAPER NUMBER
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DATE MAILED:

This is a communication from the examiner in charge of your application.

COMMISSIONER OF PATENTS AND TRADEMARKS

☐ This application has been examined ☒ Responsive to communication filed on 3 Feb 2003 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire three month(s), ____ days from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449
4. ☐ Notice of Informal Patent Application, Form PTO-152
5. ☐ Information on How to Effect Drawing Changes, PTO-1474
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1,3-6,15-17 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. ☒ Claims 2, 7-14, 18 have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 1,3-6,15 are rejected.

5. ☒ Claims 16, 17 are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings which are acceptable for examination purposes until such time as allowable subject matter is indicated.

8. ☐ Allowable subject matter having been indicated, formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. These drawings are ☐ acceptable; ☐ not acceptable (see explanation).

10. ☐ The ☐ proposed drawing correction and/or the ☐ proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).

11. ☒ The proposed drawing correction, filed 3 Feb 2003, has been ☒ approved. ☐ disapproved (see explanation). However, the Patent and Trademark Office no longer makes drawing changes. It is now applicant's responsibility to ensure that the drawings are corrected. Corrections MUST be effected in accordance with the instructions set forth on the attached letter "INFORMATION ON HOW TO EFFECT DRAWING CHANGES", PTO-1474.

12. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

OL-326 (Rev. 7-82) EXAMINER'S ACTION

SN 709098

Applicants' cancellation of non-elected claims 7-14, 18 renders moot the election of species requirement.

The substitute specification filed 3 February 2003 has been reviewed, found acceptable and has replaced the original specification. The following objections pertain to the substitute specification:

The disclosure is objected to because of the following informalities: Page 4, lines 17, 18, note that it is unclear whether reference to "German Patent No. 4, 208, 058" is correct, as recited. Page 11, line 26, it is again noted whether "DE (i.e. German Patent No.) 4, 208, 058" is proper & note that "USP" should be rewritten as --U.S. Patent No.--. Appropriate correction is required.

The disclosure is objected to because of the following informalities: Note that all labeled elements in the drawing figures should be commensurately described in the specification, especially those reference labels unique to a particular drawing figure. Moreover, like reference labels in different drawing figures refer to the same feature, and a statement to that effect should be provided in the detail description of the invention. Appropriate correction is required.

The drawings are objected to because of the following: Figs. 1a, 1b, 2a-2d, 4c-4e, 5, 6a, 6c, 8, note that these drawing figures need cross-hatching which is consistent for dielectric material cross-section views. For example, in each of the above identified drawing figures, the dielectric material layers are cross-hatched by thin diagonal lines (which nominally denote conductive material) rather than the proper alternate thin and thick diagonal lines denoting dielectric material. A proposed drawing correction or corrected drawings are required in reply to

the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The following claims have been found objectionable for reasons set forth below:

In claims 16, 17, note that "formed" should be rewritten as --disposed-- at each occurrence.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CAR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-6, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koriyama et al (of record).

Koriyama et al (figs. 15A, 15B, 16A, 16B) discloses a transition from a wiring board to a waveguide comprising a dielectric substrate (1) with a signal conductor (6) disposed on a surface

thereof and a ground layer (5) on an opposite surface of substrate (1). A slot (8) is disposed in ground plane (5) to permit electromagnetic communication between signal conductor (6) and the waveguide. Disposed within the waveguide between walls (11, 12) is a dielectric layer (40) corresponding to applicants' claimed "second dielectric position" having a rectangular patch (41) disposed thereon whose size is smaller than the waveguide opening. The rectangular patch is oriented orthogonal to slot (8). The embodiment of these figures primarily differ from the claimed invention in that a "first dielectric portion" covering the slot and sandwiching the patch with the second dielectric portion is lacking.

Note that figs. 21A-21C discloses a dielectric layer (45a) arranged to cover the whole ground plane (5) including portion (45a') disposed over slot (8) and such layer functions to provided for impedance matching between signal lines (6) and waveguide (13).

Accordingly, it would have been obvious to have modified the transition of the embodiments in Figs. 15A, 15B, 16A, 16B to have included the "first" dielectric portion (45a') adjacent the patch element (41) such that the patch element (41) is sandwiched between dielectric layers (45a') and dielectric layer (40). Such modification would have provided the advantageous benefit of improved impedance matching to the transition, thereby suggesting the obviousness of such a modification. Note that as a consequence of such a modification, the dielectric portion (45) obviously would have covered slot (8) as well as sandwich patch (41) relative to dielectric (40_ in the modified arrangement.

With respect to claim 3, note that alternate embodiment 22A-22C discloses the use of conductive vertical vias (71) which surround a conductive patch (77). Accordingly, it would have been further obvious to have added vertical conductive vias (71) surrounding the patch (41) of the above described combination. Such a modification would have been provided the advantageous benefit of reduced electromagnetic leakage for the modified combination, thereby suggesting the obviousness of such a modification. Furthermore, as an obvious consequence of such a modification, the vias would have passed through all dielectric portions.

With regards to claims 4-6, note that selection of slot and patch dimensions and orientations would have been considered an obvious optimization of design parameters which would have been within the purview of one of ordinary skill in the art.

Applicant's arguments filed 3 February 2003 have been fully considered but they are not persuasive.

Applicants' have argued that Koriyama et al fails to disclose a first dielectric layer which covers the whole surface of the grounded layer. Applicants' further assert that the Koriyama et al dielectric layer (45) is sized to match the waveguide (11) and does not teach or suggest covering the entire ground layer.

Contrary to applicants' assertion, it should be noted that the embodiment of Fig. 21A to 21C does indeed disclose that a dielectric layer does indeed cover the entire ground plane region including the slot region (8). Accordingly, Koriyama et al does indeed teach this aspect of

the invention, as presented in amended claim 1, and the rejection of record, as set forth in the above rejection, has been sustained.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benny Lee whose telephone number is (703) 308 4902.

Benny Lee

BENNY T. LEE
PRIMARY EXAMINER
ART UNIT 2817

B. Lee

September 15, 2003